
African Violet Production Guide

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AFRICAN VIOLET

CFREC-A Foliage Plant Research Note RH-91-1

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Reference to University of Florida/IFAS [Pest Control Guides](#)

Although *Saintpaulia ionantha* (African violet) is not considered a foliage plant, it is grown under environmental conditions that are very similar to those used to grow foliage plants. African violets are hairy herbs from the Gesneriaceae plant family discovered in Tanga, East Africa, growing at elevations of 100 feet or higher. Leaves usually grow in a rosette pattern. The green leaf blades are nearly orbicular to ovate, grow to 2 1/2 inches long, with long and short appressed hairs intermixed on the upper surface. Lower leaf surfaces are paler green or light purple. Flowers are borne 8 to 10 on peduncles rising above the upper leaf surface. Flowers can be single, semi-double or double in regard to number of petals.

African violets have always been very popular with consumers and today are still near the top of the list when number of flowering plants sold yearly is considered. Thousands of varieties of African violets exist and new hybrids are being developed constantly throughout the world. In recent years, commercial hybridizers have strived to produce new cultivars that produce a massive flowering display at time of sale. On the other hand, hobbyist breed for plant size and form, flower color and shape, frequency of bloom and light tolerance.

African violets available in central Florida include standard size and miniature cultivars. Standard size plants can be purchased as liners in cavity trays or as finished plants in 3, 4, 6 or 8 inch containers. Miniature African violets are sold in 1 or 2 1/2 inch pots. African violets are considered to be the most popular flowering indoor plant, but sales are well below those of throw-away flowering pot plants such as Chrysanthemum and Poinsettia.

PRODUCTION

Light intensity strongly influences appearance of African violets and is very important in production of quality plants. Listing a specific light level for African violets is difficult because of variation between cultivars, but a range of 1000 to 1200 ft-c is satisfactory for most cultivars. Cultivars that produce dark green leaves with long petioles may require higher light levels, especially if few flowers are produced, while plants with light green foliage may require lower levels.

Good overall growth can be obtained with a fertilizer regime that provides a 3-1-2 ratio of N-P2O₅-K₂O at a level that provides about 1200 lbs N/A/yr, 2 lbs N/1000 square ft-month or 3 lbs/yard or 4 grams/6" pot 19-6-12 every 3 months. Both liquid and slow-release fertilizer sources are acceptable provided the proper rate is supplied during the growing period. Micro-nutrients should be added to the potting medium during preparation or included with the fertilizer program.

African violets are well suited to production in artificial potting media composed primarily of peat moss mixed with vermiculite, pine bark, perlite or styrofoam beads. Care must be taken, however, to be sure plants receive sufficient water, since drying out will suppress growth and flowering. Soil pH should be in the range of 5.5 to 6.5 and soluble salts levels below 500 ppm at initiation of growth. The best way to irrigate African violets is by use of capillary mats, since this keeps foliage dry and prevents leaf spotting. Use of a perforated black overlay product is recommended to obtain desirable leaf shape. Plants grow and flower best at high relative humidity. Suggested air temperatures for growing African violets are between 70 and 85°F. Lower temperatures reduce growth rate as do temperatures above 85°F. Care must be exercised in selecting cultivars to grow in Florida, since some are heat sensitive and will not produce marketable plants in summer, even if maximum temperatures of 85°F or below are maintained. Atmospheric mercury did not affect blooming of violets.

PHYSIOLOGICAL PROBLEMS

1) Chlorosis

Symptoms -

Leaves are light green or medium green with chlorotic edges.

Control -

Increase fertilizer level or decrease light intensity if blooming is satisfactory. Also, check to be sure micronutrients were included in the potting medium or are included in the fertilizer program. Sometimes different cultivars grown side by side will have one with superb quality and another with off color because of different nutritional or light requirements.

2) Leaf spotting

Symptoms

- Primarily circular shaped spots which are light yellow or green appear on the upper surface of leaves. Spots can appear on margins or blades and are sometimes irregular or donut-shaped and white.

Control -

Water that is colder than the leaf surface will cause spotting and is most common in Florida

during winter. Deep well water is usually near 70°F and rarely causes problems, except when it is stored outdoors in tanks. Be sure temperatures of overhead water applications are near leaf surface temperatures.

3) Long petioles

Symptoms -

Leaves appear on extended petioles which give the plant an undesirable shape.

Control

- Long petioles are usually caused by low light, medium high fertilizer rate and optimum irrigation level. The easiest way to control this problem is to lower the fertilizer level. In some cases, selection of cultivars that do not have the tendency to produce stretched petioles should be considered.

4) Flowering problems

Symptoms -

Plants may not produce flowers, or may produce only a few, or flowers produced may not open properly.

Control -

Plants produced under low light may not bloom profusely, and therefore at least 1000 ft-c is required. Excessive light will cause plant yellowing, dwarfed plants and will also reduce flowering. In summer, excessive production temperatures may cause flowers to abort or open improperly. The only control for this problem is to reduce greenhouse temperatures or select different cultivars.

BACTERIAL PROBLEM

Reference Pest Control Guides [Here](#)

1) Bacterial blight (*Erwinia chrysanthemi*)

Symptoms -

Erwinia chrysanthemi can infect all tissues of African violet. Root infection is characterized by a rotted, water-soaked root system. A crown rot is also found sometimes. Infected petioles and leaves are greasy brown to black. Wilting and complete collapse of plants are symptoms of advanced disease.

Control -

Although there is a wide range of susceptibility levels to bacterial blight in African violet cultivars, most are moderately susceptible. Since bacterial diseases are so difficult to control with the bactericides currently available, avoiding the disease is very important. Minimize irrigations to reduce water splashing of bacteria and discard all plant materials which are suspected of bacterial infections. This pathogen infects a wide range of other foliage plants.

FUNGAL PROBLEMS

Reference Pest Control Guides [Here](#)

1) Botrytis blight (*Botrytis cinerea*)

Symptoms -

Lesions usually appear on the leaf underside, especially on petioles near the pot rim or in contact with the potting medium. A small, water-soaked lesion can rapidly enlarge and extend into the blade or petiole causing its collapse. Sporulation on necrotic leaf or flower tissue is characterized by a powdery grayish-green mass of conidia.

Control -

Avoid the following conditions - low light, high humidity, poor air circulation and warm days with cool nights.

2) Phytophthora stem and root rot (*Phytophthora parasitica*)

Symptoms -

Phytophthora stem and root rot appears very similar to bacterial blight caused by *E. chrysanthemi*. Mixed infections with the two pathogens sometimes occur. Culture of the pathogen is necessary prior to developing a control program for either disease.

Control -

Avoid overwatering since water-logged roots are easily attacked by *P. parasitica*. As with all diseases caused by soil-borne pathogens, use pathogen-free pots, potting media and plant material.

3) Powdery mildew (*Oidium* sp.)

Symptoms -

Lesions appear on flowers, petioles and leaves. A powdery white coating can form up to 1/2 inch circular areas as single lesions or can coalesce to cover the entire leaf.

Control -

The disease apparently does not cause serious losses in Florida since many growers do not apply fungicides during an outbreak.

NEMATODE PROBLEM

Reference Pest Control Guides [Here](#)

1) Foliar nematode - (*Aphelenchoides ritzemabosi*)

Symptoms -

Small, tan, interveinal sunken areas appear on lower leaf surfaces. These lesions eventually are visible on the upper leaf surface as well. Lower leaf surfaces become shiny, brown and slightly cupped. Severe reduction of leaf size as well as distortion also are common.

INSECT AND RELATED PROBLEMS

Reference Pest Control Guides [Here](#)

The major arthropod pests of this plant species include aphids, moths (worms), fungus gnats, mealybugs, mites, scales, and thrips. Mealybug, mite, and scale infestations are typically the result of bringing infested plant material into the greenhouse. Aphids, moths, fungus gnats and thrips have the ability to fly and thus invade the greenhouse from weeds and other infested plants outside. In the control section for each pest, a few of the many registered and effective pesticides will be listed. For a complete listing please consult the references at the end of this report.

1) Aphids

Symptoms -

Aphids are pear-shaped, soft-bodied insects which vary in color from light green to dark brown. Infestations may go undetected until honeydew or sooty mold is observed. Aphids can cause distortion of new growth or, in extreme cases, infested plants can be stunted.

Control -

Aphids are relatively easy to control with many registered materials.

2) Caterpillars (worms)

Symptoms -

Infestations are easy to detect because worms, their excrement and the damage they cause, are usually quite visible to the unaided eye. Damage appears as holes in the center or along the edges of leaves. Damage by worms is often confused with slug or snail damage. The only way to determine which pest is involved is to find a specimen. Old damage can be distinguished from new by the calloused appearance of the older damaged areas (worms are usually gone by this time).

3) Fungus Gnats

Symptoms -

Fungus gnats are small black flies (1/8 inch long) and are frequently observed running around the soil surface or on leaves and often confused for Shore flies (see later section). The adults have long bead-like antennae and their legs hang down as they fly. These insects are very weak fliers and appear to "flit" around randomly. The larvae are small legless "worms" with black heads and clear bodies that inhabit the soil. The larvae spin webs on the soil surface which resemble spider webs. Damage is caused by larvae feeding on roots, root hairs, leaves in contact with the soil and lower stem tissues. Feeding damage may predispose plants to disease and they are often found in close association with diseased plants or cuttings (See Shore flies). Adults do not cause any direct damage, but are responsible for many consumer complaints to growers. Adults emerge and fly around in retail shops, homes, or offices and are therefore a nuisance. For further information please consult Extension Entomology Report#74 (Management of fungus gnats in greenhouse ornamentals).

Control -

Reduce the amount of water applied to each pot where possible. Avoid algae growth on walkways, benches, and cooling pads. Nematodes that seek out insects in the soil are sold commercially and have been shown to control these pests without causing any negative

effects to the host plants. Adults are very sensitive to most chemicals.

4) Mealybugs

Symptoms -

Mealybugs appear as white, cottony masses in leaf axils, on the lower surfaces of leaves and on the roots. Honeydew and sooty mold are often present and infested plants become stunted, and with severe infestations, plant parts begin to die.

Control -

Control of root mealybugs is accomplished with soil drenches with an insecticide, but can cause some phytotoxicity. When pesticides are applied to the soil, care must be taken to assure that the pots have good drainage and that no saucers are attached, or phytotoxicity may result.

5) Mites (Broad mite and false spider mites)

Symptoms -

Mites are very small and go unnoticed until plants become severely damaged. Broad mites cause foliar necrosis of the vegetative shoot apex. Initial symptoms of injury show new leaves cupped downward, puckered, stunted and have serrated margins. Broad mite eggs are covered with many tubercles which give them the appearance of being jeweled. False spider mites (*Brevipalpus* spp.) are red in color and sedentary. Eggs are bright red and oval-shaped and are laid on both surfaces of leaves. Initial infestations are indicated by faint brown, scruffy flecks, later becoming bronze or reddish in color. Basal leaf areas are affected, vegetative shoot apices may be killed, and severe leaf drop may occur.

Control -

The critical point in any control program is thorough coverage with a pesticide. The best control program is to minimize the possibility of introducing mites into the growing area on infested plant material.

6) Scales

Symptoms -

Infested plants become weakened or stunted and begin to die. Scales can be found feeding on leaves, petioles, or stems. They are usually distinct from the plant material on which they are feeding. Their shape (round to oval), size (pinpoint to 2 mm long), and color (light to dark brown) are quite variable and many scales are hard to distinguish from the plant material on which they are feeding.

Control -

See Mealybugs

7) Shore Flies

Symptoms -

Shore flies are small black flies (1/8 inch long) and are frequently observed sitting on the tips of leaves or on the soil surface feeding on algae. The adults have very short antennae. These insects are very strong fliers and exhibit very directed flight (straight between 2 points). The

larvae inhabit the soil and are small legless "worms" with clear bodies and no obvious heads. No known damage is caused by larvae. This insect is believed to feed only on algae. Adults do not cause any direct damage, but are responsible spreading disease organisms, reducing value by defecating on the leaves (small black to green spots) and for many consumer complaints to growers. Adults emerge and fly around in retail shops, homes, or offices and are therefore a nuisance.

Control -

Reduce the amount of water applied to each pot where possible. Avoid algae growth on walkways, benches, and cooling pads on which they feed. Chemicals are not believed to be very effective in the control of this pest.

8) Slugs

Symptoms -

Slug and caterpillar damage are similar and determining which pest is present can be difficult. Snails and slugs are voracious feeders, with small stages feeding on surface tissue and larger ones eating irregular holes in foliage. Generally, the culprit can be found on close examination of the plant. Slugs often live under benches or in dark, moist protected places close to the damage. These pests are nocturnal and can be found feeding at night.

Control -

Sprays or baits applied to moistened soil around plants are effective. Repetitive applications are necessary. Good sanitation with removal of extraneous plant material and debris which might shelter these pests aids in control.

9) Thrips (Western flower thrips and Banded greenhouse thrips)

Symptoms -

Thrips are small (less than 1/20 inch long), thin insects. Adult thrips can be identified by a long fringe of hair around the margins of both pairs of wings. Color varies between species with western and other flower thrips being yellow to light brown and banded greenhouse thrips and a few other thrips that feed mainly on leaves being dark brown to black. Feeding takes place with rasping type mouth parts. Infested leaves become curled or distorted, with silver-gray scars or calloused areas where feeding has occurred. Thrips can transmit the tomato spotted wilt virus to this plant. Any unusual symptoms should be investigated.

Control -

Many materials are registered and effective at controlling thrips.

This plant is sensitive to most insecticides depending on environmental conditions. Avoid spraying plants that are stressed or spraying when hot, sunny conditions exist. Use tepid water in your spray tank.

Reference Pest Control Guides [Here](#)

Pesticides should be applied according to label directions.

Regardless of the pesticide or mixture of pesticides used, it is strongly recommended that the effects be evaluated on a few plants, under your particular conditions before treating all plants.

Mention of a commercial or proprietary product in this paper does not constitute a recommendation by the authors, nor does it imply registration under FIFRA as amended.

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